CANADA'S CLIMATE CHANGE COMMITMENTS:

Deep Enough?

Acknowledgements

A REPORT BY

CAN Rac — Climate Action Network Canada | Réseau Action Climat Canada

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Conservation Council of New Brunswick
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Canada's Climate Change Commitments: Deep Enough?

Under the Paris Agreement on climate change, Canada has committed to a 2030 target of reducing its greenhouse gas (GHG) emissions 30 per cent from 2005 levels. Will the proposed Pan-Canadian Framework (PCF) on clean growth and climate change be enough for the country to reach this goal? What other policies will be needed? And what impact will these climate policies have on the national GDP?

Research undertaken by two leading environmental economists shows that Canada can reduce its GHG emissions to meet its international commitment under the Paris Agreement on climate change, with minimal impact on the national GDP. A Paris-compliant scenario would allow the Canadian economy to continue to grow and prosper, and cooperation between the federal and provincial governments would further smooth the economic transition compared to Canadian jurisdictions acting in isolation. However, the research also found that current climate policies will need to be strengthened or complemented with other policies and actions in order to meet or exceed Canada's 2030 target.

This paper summarizes the findings of modelling research undertaken by Dave Sawyer and Chris Bataille, two of Canada's leading environmental economists, and makes recommendations on how the federal and provincial governments can ensure success in the fight against climate change.

The main findings from the modelling show how Canada can meet or exceed the 2030 target, get closer to meeting its fair share of limiting global warming to well below 2 degrees Celsius, and keep our economy on track while taking advantage of the opportunities of clean growth:

Policies in the Pan-Canadian Framework (PCF) on climate change need to be implemented with urgency and a high level of ambition.

There will be little to no impact on the level of economic activity in Canada if we take the actions necessary to achieve our 2030 climate commitment. Economic activity will shift towards low- and zero-carbon energy and transportation, and any fluctuation in GDP will be both negligible and manageable.

Opportunities need to be seized to foster clean growth and to extend and/or strengthen PCF policies.

The federal government must play a strong coordination role between sub-national governments to maximize policy coherence across the federation.

Background

On December 9, 2016, the federal government and the provinces and territories announced the Pan-Canadian Framework on Clean Growth and Climate Change (PCF). The agreement is intended "to reduce greenhouse gas (GHG) emissions and enable sustainable economic growth."[1] The PCF explicitly recognizes "the need for fair and flexible approaches to support the diversity of provincial and territorial economies."

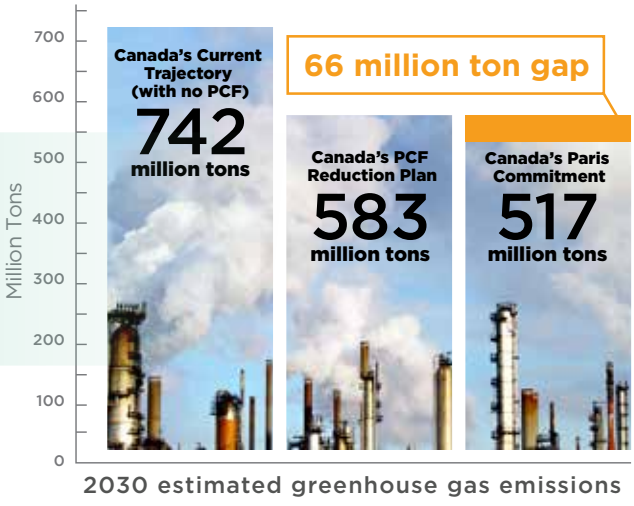
The Framework includes measures to address carbon emissions from all polluting sectors with a range of policies, including: carbon pricing, regulations to reduce carbon emissions, greening government procurement, and funding programs for green infrastructure, clean technologies, and innovation. The PCF's overall goal is to reduce GHG emissions to meet or exceed Canada's 2030 target under the Paris Agreement, i.e. a 30 per cent reduction in greenhouse gas emissions from 2005 levels. That means reducing emissions from a projected 742 million tonnes (Mt) of CO_2 in 2030 – the business-as-usual scenario – to at most 517 Mt. However, according to government projections from December 2017, even if the PCF's policies are fully implemented, and are as effective as envisioned, they will reduce emissions to only 583 Mt,[2] leaving a 66 Mt gap that still needs to be filled with stronger action. That gap is an increase from the 44 Mt gap projected in the PCF one year earlier.[3]

As a nation, Canada now faces the challenge of implementing the policies and practices contained in the PCF while developing and supporting the technology and innovation that will not only achieve the goal of the Framework but also fill the 66 Mt gap.

Meeting the 2030 target requires building on the commitments and programs that provinces and territories have already put in place to reduce the greenhouse gases they produce. Current provincial programs include carbon pricing, phasing out coal power, increasing the proportion of clean fuels being consumed in transportation, increasing the production of renewable energy (water, wind and solar), and policies to increase energy efficiency in residential and commercial buildings. Emerging technologies such as tidal power and innovations such as smart grid and storage solutions can achieve further provincial emissions reductions beyond what is in the PCF.

An additional question that needs to be asked is: are reductions that achieve Canada's 2030 Paris target deep enough, or should we reduce our GHG emissions even more as we move to a low-carbon economy? Canada's target was deemed highly insufficient by European think tanks based on the goal to limit global warming to 2 degrees Celsius.[4] Limiting warming to well below 2 degrees, the stated goal of the Paris Agreement, requires an even stronger target for Canada. Environment and Climate Change Minister Catherine McKenna recently stated that our emissions target must become more ambitious,[5] so it is fair to expect the Canadian government to update its commitment in the Paris Agreement to achieve greater emissions reductions. More and stronger climate policies will be needed to achieve that new, stronger target.[6]

Pan-Canadian Framework on Clean Growth and Climate Change



The Analysis

Two prominent energy and greenhouse gas modellers, Dave Sawyer and Chris Bataille, were commissioned to assess what policies would be needed for Canada to meet or exceed its 2030 Paris commitments: a 30 per cent reduction below the 2005 level by 2030. The analysis reached some important key findings:[7]

1

Canada can reach its 2030 target if the federal, provincial and territorial governments implement climate policies in a timely and rigorous way. The Pan-Canadian Framework has the policy tools needed to achieve the target but measures will have to be ratcheted up to fill the 66 million tonne gap.

The shifts needed to achieve the Paris objectives are well known and include transitioning to clean, renewable energy and adopting and investing in greater energy efficiency. However, the changes needed in our energy and transportation systems before and after 2030 to achieve deep reductions by 2050 are not marginal, but transformational. They include:

- Building exclusively net-zero energy homes, i.e. buildings that generate as much energy as they consume.
- The electrification of transportation, so that cars, trucks and trains can be powered by renewable energy rather than oil, which contributes to climate change.
- Wholesale shifts away from fossil fuels and towards renewable energy.
- Driving down energy needs by making industry, buildings and vehicles more energy efficient.
- Embracing the full potential of energy storage to maximize the use of renewable electricity and building infrastructure to trade that electricity between jurisdictions.

2 There will be little to no impact on the level of economic activity in Canada if we take the actions necessary (in the PCF and beyond) to achieve our 2030 climate commitment. Implementing the necessary climate change policies will mean the Canadian economy will grow by 38 to 38.5 per cent between now and 2030, rather than 39 per cent if we take no additional actions (including those in the PCF), to reduce GHG emissions.

Though economic activity will shift towards low- and zero-carbon energy and transportation, the 0.5 to 1 per cent difference in GDP over a dozen years is both negligible and manageable. A full-cost accounting that includes benefits such as the avoided impacts of air pollution and climate change would eliminate that cost differential.

3 Connecting or harmonizing federal, provincial and territorial carbon policies would improve economic efficiency and reduce costs, especially for large industries, making it easier to achieve Canada's 2030 GHG reduction target. Increased coordination across governments would reduce the potential jumble of regulatory requirements in each jurisdiction that could create economic uncertainty and regulatory burden. Also, provincial-territorial alignment on the price of carbon and on trading systems could reduce economic costs.

There will also be significant economic advantages associated with taking action to greatly reduce carbon emissions. Across Canada, we have a huge potential to generate bountiful, cost-effective, clean, renewable energy. Canada has a competitive advantage that we can use to produce low-carbon or no-carbon goods and services for a global market increasingly embracing climate-friendly action. Canada has been consistently losing market share in the trillion dollar global clean technology market over the last decade, while Canadian clean technology firms are struggling to grow.[8] The success of Canada's economy depends on taking full advantage of the opportunities associated with the transition to a clean economy. Though there will be challenges, Canada must be ready to foster and take advantage of the global and home-grown innovative technologies that are fast emerging, which can electrify transportation and energy systems and run them on clean, renewable power.

Additional Findings

There are a number of other important conclusions that emerge from the modelling research. They are key considerations for how the PCF can be strengthened to reach or exceed Canada's 2030 GHG target with little economic cost.

PROVINCES AND TERRITORIES COLLABORATE WITH THE FEDERAL GOVERNMENT

There are many climate initiatives that are already being undertaken in provinces and territories. Carbon pricing – ensuring there is a cost to using fossil fuels and polluting the atmosphere – often gets the most attention. Examples include Quebec and Ontario joining California in a cap-and-trade system, and B.C. and Alberta implementing carbon taxes. But there also numerous regulatory initiatives to reduce emissions from power production, buildings, and other sectors, and government programs to fund public transit and other green infrastructure.[9] To date, provincial and territorial plans have been disparate and piecemeal, but Canada now has the opportunity to bring together all levels of government and act decisively in a much more coordinated and comprehensive way.

REGULATORY APPROACHES

The modelling work shows that there are a variety of regulations that could be tightened across provinces and territories to achieve deeper emission reductions. Most of these are found in the PCF, though some may need to be ratcheted up over time. Some of these will have to be applied at the federal level while others will be implemented provincially, with federal input.

Here are the key ingredients that the modelling work shows are necessary to meet Canada's climate commitments, while maintaining stable economic performance:[10]

- Transport trucks and other heavy-duty vehicles reach zero emissions by 2040 (stronger than the PCF)
- Personal vehicles approach zero emissions by 2030 (stronger than the PCF)
- A clean fuel standard continuously decreases the carbon-intensity of fuels used in transportation, buildings, and industry (in the PCF)
- Strengthened regulations decrease methane emissions from the oil and gas sector by 50 per cent to 60 per cent below current levels (stronger than the PCF)
- Building codes require all new homes to be net-zero energy before 2030 (stronger than the PCF)
- Existing buildings are retrofitted according to continuously improving standards from 2025 to 2040 (in the PCF)
- Stronger standards improve the energy efficiency of equipment and appliances (in the PCF)
- Boilers reach zero emissions by 2040 (not in the PCF)

CARBON PRICING

The PCF outlines a "benchmark" for pricing carbon pollution, which has since been elaborated upon in draft legislation released in January 2018.[11] Starting in 2019, provinces and territories must implement either a carbon tax or a cap-and-trade system. For provinces with carbon tax systems, the level of the tax must be equal or greater than the rising federal benchmark, going from $10/tonne of CO_2 in 2018 to $50/tonne of CO_2 in 2022. For cap-and-trade provinces, the cap on emissions must decrease carbon emissions at the same pace or faster as the carbon price would. An Output-Based Pricing System, as adopted by Alberta to address competitiveness concerns within industry, will also be accepted.[12]

The modelling we commissioned can inform the way that the federal carbon pricing benchmark should be designed and implemented. Most importantly, the modelling shows that a pan-Canadian price on carbon that continues to rise over time is a key element to spurring innovation, achieving the 2030 GHG reduction target, and getting Canada on track to deeper emission reductions post-2030.[13] And so, the carbon price must be designed to continue to increase beyond the currently scheduled increase up to 2022. Indexing the carbon price to inflation would also help with carbon reductions, since this would prevent the carbon price signal from being eroded over time; moreover, indexing would achieve an additional 13 Mt in GHG reductions.[14]

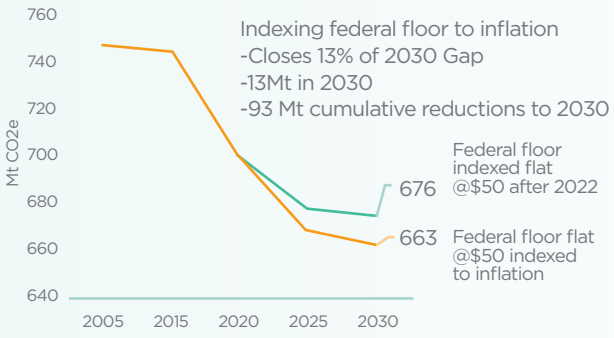
The research also shows that carbon pricing needs to be applied to as many sources of carbon emissions as possible to maximize its effectiveness. (This principle was not consistently adhered to in the federal government's draft legislation, which omitted fuel use in agriculture from coverage under the federal benchmark.) All emissions that can be reasonably and reliably measured should face a carbon price, which would include:

- **Fossil fuel consumption**
- **Intentional and unintentional methane emissions from oil and gas operations**
- **Emissions created from industrial processes**

It also means that any measures to address competitiveness concerns for Canadian industries need to be temporary and targeted at industries that truly face competitiveness concerns, where firms would move to non-carbon tax jurisdictions.[15] When emissions are excluded from carbon pricing without a solid rationale, it increases the needed price on those emissions that are being priced and increases costs imposed on the rest of the economy.

The modelling also shows that the carbon price to achieve the 2030 target with current measures in place would need to reach $96/tonne to $150/tonne of CO_2 by 2030.[16] The difference in the range is based on whether there is provincial cooperation with respect to large industrial polluters. A rigourous emissions trading system that covers all emission sources can reduce the level of the needed carbon price.

Keep Carbon Prices Real, Indexed to Inflation



Important Considerations Not Included in the Modelling

There are essential elements of climate action in Canada that could not possibly be modelled, but are nonetheless crucial to reaching deep emission reductions in a just and inclusive way.

Working collaboratively with First Nations on a nation-to-nation basis is important for reaching many important goals; achieving success on climate change is one of them. Indigenous peoples are rights holders with respect to resource development in Canada, and have deep knowledge to bring to the challenge of both reducing Canada's carbon emissions and addressing increasingly significant climatic impacts. The federal government has expressed a desire to do this better, but significant challenges remain in integrating First Nations' rights and perspectives into decision-making.[17]

There is also a need to develop and implement just transition programs for workers and communities. A just transition framework would include a number of policies to secure good jobs and healthy communities during the transition to a low-carbon economy. It ensures that the social costs and benefits of transition to a clean economy are spread across Canadian society. The federal government's commitment to a just transition for workers and communities affected by the phase out of coal power in Canada[18] needs to be developed and implemented in a meaningful way, and could serve an example to be built upon in the future in other economic sectors.

Finally, for Canada to stay on track to meet or exceed its 2030 Paris climate commitments, the federal government needs to put into place important accountability measures that allow for a continuous review of progress towards that target, and mechanisms to ratchet up policies and action when needed.[19] Canada's poor record of achieving international climate commitments means the federal government has some work to do to substantiate the strong tone of climate leadership it strikes on the world stage. Reaching an international climate target is key for both Canada's international reputation and for signaling to other countries that we want to work cooperatively to address the most important challenge of our day.

Conclusions and Next Steps

Achieving Canada's 2030 greenhouse gas emissions target is possible and will not hamper our economy. But success requires greater federal, provincial, and territorial action and coordination, regular reviews of progress, and expert analysis and advice on modifying or strengthening the country's approach to climate change.

The research shows that we can reinvigorate climate action and get the country on track to emission reductions that can help avoid the damages of dangerous climate change. There is a large body of research that consistently shows that the costs of inaction—for example, sea level rise, an increase in damaging forest fires and insect infestations, impacts on human health, and more frequent extreme weather such as hurricanes, tornadoes, and flooding from intense rain events —are a fraction of the costs of inaction.[20]

There will always be detractors—those who prefer the status quo regardless of collective interest. But there are many more who want to see Canada taking real action on climate change and envisioning new means of generating wealth and jobs in the country. Working with like-minded actors, while holding the line on those who want to eschew their responsibility, will be a critical challenge for the federal government.

The federal government must show leadership by acting in its areas of jurisdiction, showing other orders of government and Canadian citizens that significantly reducing our polluting emissions is of the highest priority. The research is clear that cooperation across the federation will decrease the costs of climate action overall. Working with sub-national governments, First Nations and other Indigenous peoples, business, industry, and other stakeholders and citizens can minimize costs and ensure that everyone does their fair share as part of a national project to reduce GHG emissions and transition to a low-carbon future. A healthy, secure, and prosperous society will be the result.

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